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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,208	11/12/2003	Anand Chellappa	70279.011200	8296

7590 03/18/2008

Mark Krietzman
Suite 400 E
2450 Colorado Ave.
Santa Monica, CA 90404

EXAMINER	
CHEN, BRET P	
ART UNIT	PAPER NUMBER
1792	
MAIL DATE	DELIVERY MODE
03/18/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/712,208	CHELLAPPA ET AL.	
	Examiner	Art Unit	
	BRET CHEN	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11-18,21 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11-18,21 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-9, 11-18, 21-25 are pending in this application, which is an RCE of Serial Number 10/712208. The preliminary amendment dated 1/28/08 amending claims 1 and adding new claims 23-25 has been entered. In view of said amendment, the previous 112 rejection has been withdrawn.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/28/08 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-9, 11-18, 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brophy et al. (2004/0034266) in view of Sandia (article).

Brophy discloses method of producing hydrocarbons by oxidative hydrocarbons in a reactor (P2). Specifically, Brophy teaches that reactor walls can be coated with a passivation layer to reduce coking and that the coating materials can include refractory oxide such as silica, alumina, zirconia, titania, chromia, ceria, Group II metals (alkaline earths) and rare earth metals, atomic numbers 57-71 (P77). The passivation coating could, optionally, be catalytic supports or could be dense coatings to protect an underlying metal wall and can be applied a number of techniques including chemical or physical vapor deposition or electrochemical deposition, or thermally-grown, or combinations of these techniques (P77). The wall can be stainless steel or inconel (P60) and can contain channels (P25) and microchannels less than 2mm (P28,60). However, the reference fails to teach cold spraying.

The Sandia article discloses a method of injecting metal particles or other solids into a target surface (p.1 paragraph 2). The advantages of using cold spray are decreased residual stress which result in defects (p.2 paragraph 2). Materials include oxides, metals, and metal-ceramic composites (p.2 paragraphs 4,7). It would have been obvious to utilize the cold spraying technique of Sandia in the process of Brophy with the expectation of avoiding undesirable chemistry changes and stresses.

The limitation of claims 2, 4, 5 have been addressed above.

In claim 3, the applicant requires a specific percentage. It is the examiner's position that some ration of oxide to metal exists in the material layer as the reference clearly teaches a metal oxide as noted above. Varying percentages is well known in the art in optimizing properties and

would have been obvious to do in routine experimentation and in the absence of a showing of criticality with the claimed percentage.

In claims 6-9, the applicant requires coating the tube. Brophy specificially teaches of applying a passivating layer to reduce coking. One skilled in the art would reasonably expect that any surface exposed to the carbon impurities should be coated to reduce coking. Hence, it would have been obvious to coat the tube surface in the reactor with the expectation of reducing coking. The same issue applies to claims 11-12 directed to a cover and 17-18 directed to protrusions.

The limitations of claims 13-14 have been addressed above.

In claims 15-16, the applicant requires leaving uncoated portions for the expressed purpose of joining. One skilled in the art knows that coating with an oxide film reduces the ability to join two materials. For example, it is clearly more difficult to "weld" two oxide surfaces as opposed to two metals. It one skilled in the art desired to join two materials, it would not be beyond the skilled artisan to not coat the joining surfaces with an oxide film.

The limitations of claims 20-21 have been addressed above.

In independent claims 23-25, the applicant phrases the general concept of reducing coking in the preamble. The subject matter has been addressed above.

Trimm (Catalysis Today article) teaches of using catalysts and rare earth oxides for controlling coking during the production of hydrogen (abstract). Specifically, Trimm suggests that to minimize coke formation one should look at materials which have similar structure as that of carbon (p.6 col.2 lines 17-35).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRET CHEN whose telephone number is (571)272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. Chen/
Primary Examiner, Art Unit 1792
3/11/08